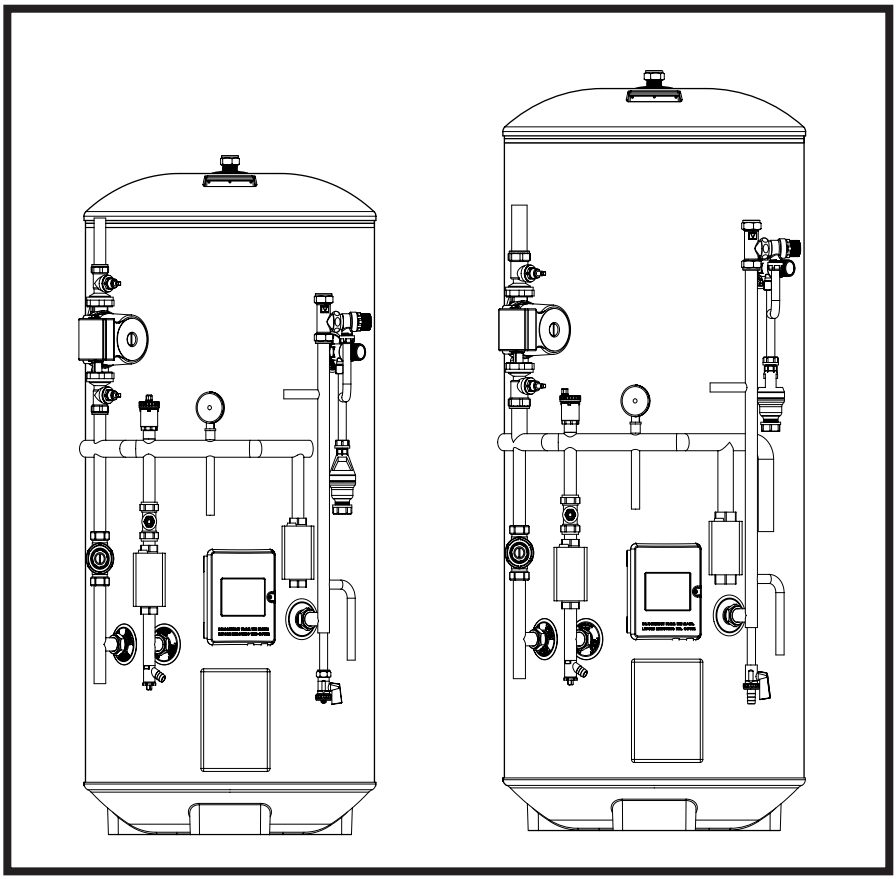
PREMIER PLUS

UNVENTED HOT WATER SYSTEMS SYSTEMFIT

PRE-PLUMBED UNVENTED MAINS PRESSURE WATER HEATER
120, 150, 170, 210, 250 AND 300 LITRE

INSTALLATION AND SERVICING INSTRUCTIONS



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Please read and understand these instructions before starting work.
Please leave this leaflet with the user following installation

1 Introduction

The Premier Plus SystemFit is a factory pre-plumbed and wired version of the Premier Plus unvented water heater. The Premier Plus SystemFit is manufactured in the UK from top quality materials and meets all the latest relevant safety and constructional standards. The high grade Duplex stainless steel cylinder offers exceptional strength and corrosion resistance which is backed by a 25 year on site parts and labour guarantee. Its performance, control system and insulation levels exceed the latest requirements of Building Regulation Part L.

The Premier Plus SystemFit unvented water heater can be fed directly from the mains supply to the property without the need for separate feed cisterns or vent pipes. It is supplied fitted with all its necessary inlet and safety controls for compliance with Building Regulations. Also fitted are a primary circulating pump, automatic bypass valve, a flow balancing valve, 2 x 2 port motorised valves, a cylinder thermostat, thermal cut-out and wiring centre. The pump, motorised valves and thermal controls are supplied pre-wired. A heating and domestic hot water programmer and room temperature sensor are supplied loose for installation at a convenient position within the property. An electric immersion heater is also fitted to enable the unit to be heated should the boiler be turned off.

The Premier Plus SystemFit primary circuit can be connected to a variety of gas or oil fired boiler types, either open vented or sealed system. It is not recommended for use with “system” boilers as these already incorporate their own circulating pump and controls.

The Premier Plus SystemFit is supplied with a separate expansion vessel for the domestic hot water. An expansion vessel for a primary sealed circuit is also supplied loose for installation on site.

NOTE: if using a sealed system boiler adequate provision for primary circuit pressure relief must also be provided by means of a suitably sized Pressure Relief Valve. The safety valves fitted to the Premier Plus SystemFit protect the water heater only. Failure to provide adequate Primary System Pressure Relief when using a sealed system will invalidate the boiler manufacturers warranty. Consult the boiler manufacturers installation instructions for further advice.

2 General Requirements

IMPORTANT : PLEASE READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE INSTALLING THE PREMIER PLUS SYSTEMFIT WATER HEATER. INCORRECT INSTALLATION MAY INVALIDATE GUARANTEE.

THE PREMIER PLUS MUST BE INSTALLED BY A COMPETENT INSTALLER IN ACCORDANCE WITH BUILDING REGULATION G3 (ENGLAND AND WALES), TECHNICAL STANDARD P3 (SCOTLAND) OR BUILDING REGULATION P5 (NORTHERN IRELAND).

2.1 COMPONENT CHECK LIST

Before commencing installation check that all the components for your Premier Plus SystemFit unit are contained in the package. The following components are supplied with your Premier Plus unit :

- Factory fitted immersion heater (s) and thermal controls
- Cold Water Combination Valve (comprises Pressure Reducing Valve, Strainer, Check Valve)(supplied loose)
- Factory fitted Expansion core unit (comprises Expansion Valve and Check Valve)
- Potable water Expansion Vessel (supplied loose)
- Factory fitted Temperature/Pressure Relief Valve (set at 90°C/10bar)
- Tundish
- Factory fitted Indirect Thermostat and Thermal Cut-out
- 2 x 2-Port Motorised Valve
- Primary circulating pump
- Lock-shield flow balancing valve
- Automatic bypass valve
- Primary circuit filling loop
- Primary circuit Pressure Gauge
- Automatic air vent
- Primary circuit expansion vessel (12 litre) (supplied loose)
- CH/DHW programmer and room temperature sensor (supplied loose)

2.2 SITING THE PREMIER PLUS SYSTEMFIT

The Premier Plus SystemFit unit must be vertically floor mounted. It can be placed anywhere convenient provided the discharge pipe(s) from its safety valves can be correctly installed. Areas that are subject to freezing must be avoided. Ensure that the floor is of sufficient strength to support the “full” weight of the unit (refer to Dimensions Tables on pages 30 and 31 for unit weights). Pipe runs should be kept as short as possible for maximum economy. Access to associated controls, immersion heaters and indirect controls (Note: indirect controls housing hinges open to the left hand side) should be possible for servicing and maintenance of the system.

To aid installation the Premier Plus SystemFit is provided with lifting points located in the base and top mouldings. A floor template is also provided to aid positioning.

If you choose to install the PremierPlus SystemFit in the highest point in the property (e.g. loft space), it is advisable to install an additional Automatic Air vent (AAV) (not supplied-available as spare, part number 95 605 050) above the pump to enable air to be removed from the system. The addition of the AAV is not required if siting the cylinder in a lower position.

2.3 WATER SUPPLY

Bear in mind that the mains water supply to the property will be supplying both the hot and cold water requirements simultaneously. It is recommended that the maximum water demand be assessed and the water supply be checked to ensure this demand can be satisfactorily met.

NOTE: A high mains water pressure will not always guarantee high flow rates.

Wherever possible the main supply pipe should be in 22mm. We suggest that the minimum supply requirements should be 1.5 bar pressure and 20 litres per minute flowrate. At these values outlet flowrates may be poor if several outlets are used simultaneously, the higher the available pressure and flowrate the better the system performance will be.

The Premier Plus SystemFit has an operating pressure of 3.5 bar which is controlled by the Cold Water Combination Valve. The Cold Water Combination Valve can be connected to a maximum mains supply pressure of 16 bar. The water supply must be of wholesome water quality (Fluid Category 1 as defined by the Water Supply Regulations 1999).

2.4 OUTLET/TERMINAL FITTINGS (TAPS, ETC.)

The Premier Plus SystemFitcan be used in conjunction with most types of terminal fittings, plumbing fittings and pipework. However, the rated pressures of any fittings selected should be checked for compatibility before installation.

NOTE: Accessories, plumbing fittings and pipework should have a rated operating pressure of at least 6 bar.

Outlets situated higher than the Premier Plus SystemFitunit will give outlet pressures lower than that at the heater, a 10m height difference will result in a 1 bar pressure reduction at the outlet fitting.

2.5 LIMITATIONS

The Premier Plus SystemFit unvented water heater should not be used in any of the following instances:

- Solid fuel boilers or any other boiler in which the energy input is not under effective thermostatic control unless additional and appropriate safety measures are installed.
- Steam heating plant
- Ascending spray type bidets or any other Class 5 back syphonage risk requiring that a Type AA, AB, AD or AG air gap be employed.
- Water supplies that have either inadequate pressure or where the supply may be intermittent.
- Situations where it is not possible to safely pipe away any discharge from the safety valves.
- Areas where the water consistently contains a high proportion of solids, eg. sus pended matter that could block the strainer, unless adequate filtration can be ensured.

3 Installation - General

3.1 PIPE FITTINGS

The connection points to the heating system are in 22mm o/dia copper pipe on 120 and 150 litre units. On units 170 litres and above the primary flow connection is 28mm, the flow connections to central heating (CH) zones 28mm and the domestic hot water (DHW) return connection 22mm o/dia copper pipe. The use of appropriately sized COMPRESSION FITTINGS is recommended when connecting to the Premier Plus SystemFit pipes. Solder fittings can be used, but extreme care must be taken to ensure the plastic coating of the unit casing is not damaged by heat. Push fit type fittings can be used for connection to the copper pipes.

The inlet connection to the cold water combination valve is 22mm compression. The Premier Plus SystemFit outlet fitting is suitable for connection to 22mm o/dia pipe (compression nut and olive supplied). The outlet is also threaded 3/4" BSP male parallel should threaded pipe connections be preferred.

3.2 COLD WATER SUPPLY

A 22mm cold water supply is recommended, however, if a 15mm (1/2") supply exists which provides sufficient flow (see section 2.3) this may be used. More flow noise may be experienced from small bore pipes due to the increased water velocity through them.

A stopcock or servicing valve should be incorporated into the cold water supply to enable the Premier Plus SystemFit and its associated controls to be isolated and serviced.

3.3 COLD WATER COMBINATION VALVE (see Diagram 1)

The Cold Water Combination Valve is supplied loose, but must be plumbed in the inlet supply to the Premier Plus SystemFit . The Cold Water Combination Valve can be sited anywhere on the cold mains supply prior to the Premier Plus SystemFit unit. It can be located at a point where the mains supply enters the premesis if this is more convenient.

The Cold Water Combination Valve is installed as a complete one-piece unit. The valve incorporates a factory set, non-adjustable Pressure Reducer/Strainer and a single Check Valve.

3.4 EXPANSION CORE UNIT (see Diagram 2)

Should a balanced pressure cold water supply be required to cold water outlets, such as thermostatic shower mixer valves or combination taps, the cold water balanced draw off connection should be taken from between the Cold Water Combination Valve and the Expansion Core Unit (see Diagram 3). Branches to cold drinking water outlets should be taken directly from the mains supply.

3.5 POTABLE WATER EXPANSION VESSEL

The potable water Expansion Vessel (grey vessel) accommodates expansion that results from heating the water inside the unit. The unit is pre-charged at 3.5 bar. The Expansion Vessel must be connected between the Expansion Core Unit and the Premier Plus SystemFit (see Diagram 3) using the connection provided on the inlet pipe and flexible hose supplied.. The location of the Expansion Vessel should allow access to recharge the pressure as and when necessary, this can be done

using a normal car foot pump. It is recommended that the Expansion Vessel is adequately supported. An Expansion Vessel wall mounting bracket is supplied for this purpose

Diagram 1 - Cold Water Combination Valve

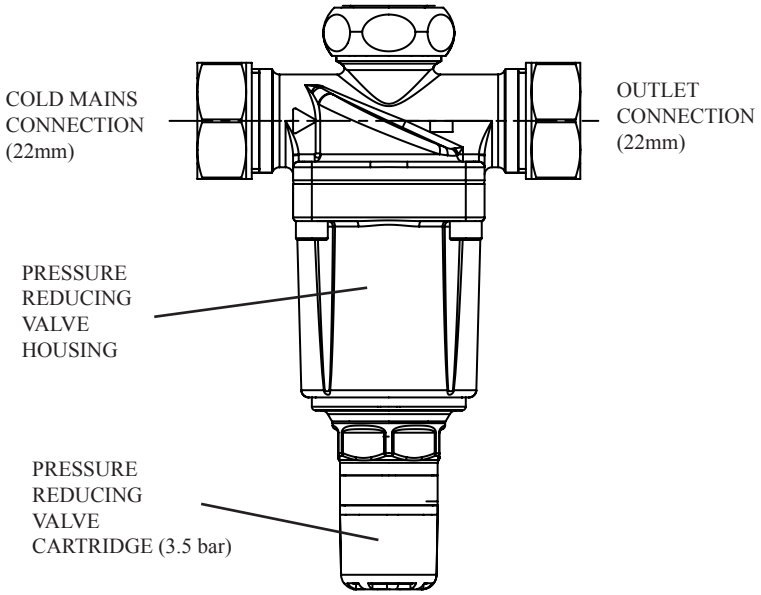

COLD MAINS CONNECTION (22mm)
OUTLET CONNECTION (22mm)
PRESSURE REDUCING VALVE HOUSING
PRESSURE REDUCING VALVE CARTRIDGE (3.5 bar)

Diagram 2 - Expansion Core Unit

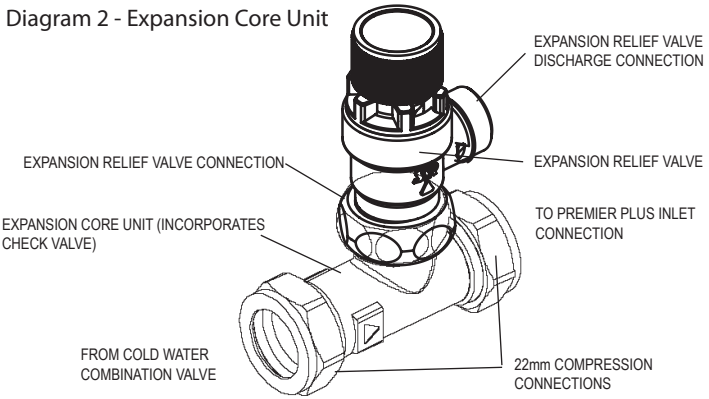
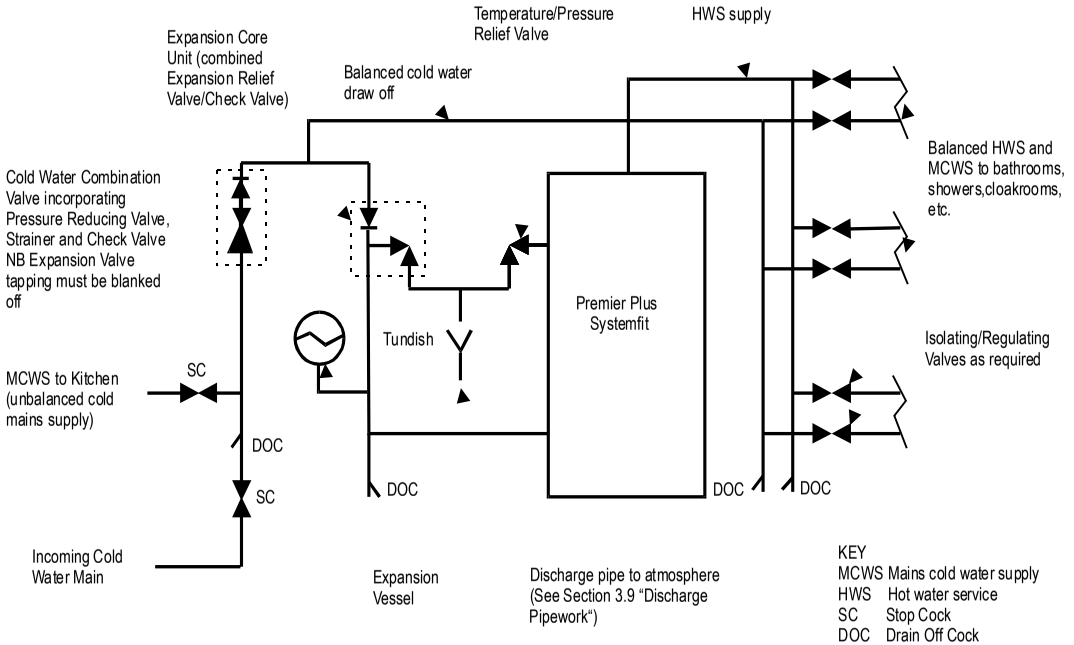

EXPANSION RELIEF VALVE DISCHARGE CONNECTION
EXPANSION RELIEF VALVE CONNECTION
EXPANSION RELIEF VALVE
TO PREMIER PLUS INLET CONNECTION
EXPANSION CORE UNIT (INCORPORATES CHECK VALVE)
FROM COLD WATER COMBINATION VALVE
22mm COMPRESSION CONNECTIONS

Diagram 3 - Schematic installation diagram showing Cold Water Combination Valve, Expansion Core Unit and positioning of cold balanced draw off


Temperature/Pressure Relief Valve
HWS supply
Expansion Core Unit (combined Expansion Relief Valve/Check Valve)
Balanced cold water draw off
Balanced HWS and MCWS to bathrooms, showers,cloakrooms, etc.
Cold Water Combination Valve incorporating Pressure Reducing Valve, Strainer and Check Valve NB Expansion Valve tapping must be blanked off
Premier Plus Systemfit
Tundish
Isolating/Regulating Valves as required
MCWS to Kitchen (unbalanced cold mains supply)
SC
DOC
SC
DOC
DOC
DOC
Incoming Cold Water Main
Expansion Vessel
Discharge pipe to atmosphere (See Section 3.9 "Discharge Pipework")
KEY
MCWS Mains cold water supply
HWS Hot water service
SC Stop Cock
DOC Drain Off Cock

3.5 DRAIN TAPS

Drain taps are fitted to both the primary system pipework and to the cold water inlet to facilitate draining the unit or indirect heating circuit for maintenance purposes. It is recommended that the outlet point of the drain pipe work be at least 1 metre below the level of the heater (this can be achieved by attaching a hose pipe to the drain tap outlet spigot).

3.6 OUTLET PIPEWORK

Ideally the pipework from the Premier Plus SystemFit to the outlet fittings should be in 22mm pipe with short runs of 15mm pipe to showers and basin taps. Small bore pipe can also be used to suit some taps, but runs should be of minimum length. Pipe sizes may vary due to system design.

3.7 SECONDARY CIRCULATION

If a secondary circulation system is required it is recommended that it be connected to the Premier Plus as shown in Diagram 4 via the tee joint supplied. This is supplied capped off, the cap must be removed before connection. Care must be taken if using a solder fitting to protect the plastic coated surface of the Premier Plus SystemFit casing. The secondary return pipe should be in 15mm pipe and incorporate a check valve to prevent backflow. A suitable WRAS approved bronze circulation pump will be required. On large systems, due to the increase in system water content, it may be necessary to fit additional expansion volume to the system by fitting an external potable water expansion vessel to the secondary circuit. This should be done if the capacity of the secondary circuit exceeds 10 litres.

Pipe capacities (copper)

15mm o/d = 0.13 litres per metre run (10 litres = 77m)

22mm o/d = 0.38 litres per metre run (10 litres = 26m)

28mm o/d = 0.55 litres per metre run (10 litres = 18m)

3.8 WARNINGS

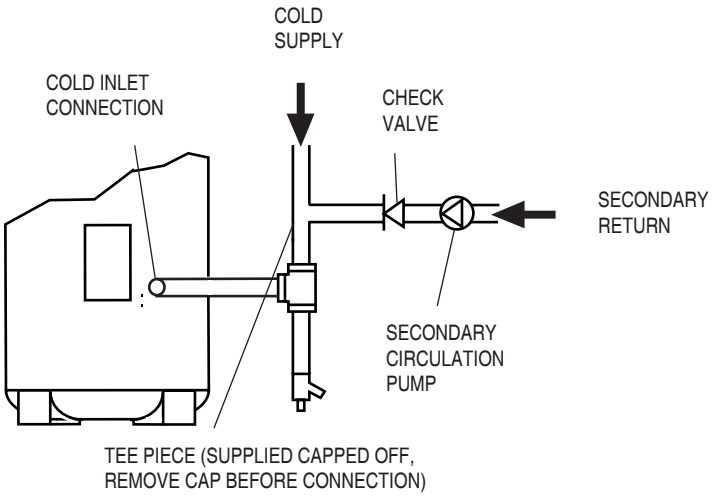
i) Under no circumstances should the factory fitted Temperature/Pressure Relief Valve be removed other than by Authorised Santon personnel. To do so will invalidate any guarantee or claim.

ii) The Cold Water Combination Valve must be fitted to the mains water supply to the Premier Plus unit.

iii) No control or safety valves should be tampered with.

iv) The discharge pipe should not be blocked or used for any other purpose.

Diagram 4 - Secondary circulation connec-



3.9 DISCHARGE PIPEWORK

It is a requirement of Building Regulations that any discharge from an unvented system is conveyed to where it is visible, but will not cause danger to persons in or about the building. The tundish and discharge pipes should be fitted in accordance with the requirements and guidance notes of Building Regulations. Building Regulation G3 Requirements and Guidance section 3.9 are reproduced in the following sections.

Information Sheet No. 33 available from the British Board of Agrement gives further advice on discharge pipe installation. For discharge pipe arrangements not covered by G3 Guidance or BBA Info Sheet No.33 advice should be sought from either your local Building Control Officer or Heatrae Sadia.

The discharge pipework supplied fitted to the Premier Plus Systemfit is for the Premier Plus only. A sealed system boiler installation will require its own, separate discharge pipe arrangement (refer to the boiler manufacturers instructions for the correct installation of this).

G3 REQUIREMENT

"...there shall be precautions...to ensure that the hot water discharged from safety devices is safely conveyed to where it is visible but will not cause danger to persons in or about the building."

G3 GUIDANCE SECTION 3.9

The discharge pipe (D1) from the vessel up to and including the tundish is generally supplied by the manufacturer of the hot water storage system. Where otherwise, the installation should include the discharge pipe(s) (D1) from the safety device(s). In either case the tundish should be vertical, located in the same space as the unvented hot water storage system and be fitted as close as possible and within 500mm of the safety device e.g. the temperature relief valve.

The discharge pipe (D2) from the tundish should terminate in a safe place where there is no risk to persons in the vicinity of the discharge, preferably be of metal and:

a. be at least one pipe size larger than the nominal outlet size of the safety device unless its total equivalent hydraulic resistance exceeds that of a straight pipe 9m long i.e. discharge pipes between 9m and 18m equivalent resistance length should be at least two sizes larger than the nominal outlet size of the safety device, between 18 and 27m at least 3 sizes larger , and so on. Bends must be taken into account in calculating the flow resistance. Refer to Diagram 5, Table 1 and the worked example.

An alternative approach for sizing discharge pipes would be to follow BS 6700:1987 *Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages,* Appendix E, section E2 and table 21.

b. have a vertical section of pipe at least 300mm long below the tundish before any elbows or bends in the pipework.

c. be installed with a continuous fall.

d. have discharges visible at both the tundish and the final point of discharge, but where this is not possible or is practically difficult there should be clear visibility at one or other of these locations.

Examples of acceptable discharge arrangements are:

i. ideally below a fixed grating and above the water seal in a` trapped gully.

ii. downward discharges at low level; i.e. up to 100mm above external surfaces such as car parks, hard standings, grassed areas etc. are acceptable providing that where children may play or otherwise come into contact with discharges a wire cage or similar guard is positioned to prevent contact, whilst maintaining visibility.

iii. discharges at high level; e.g. into a metal hopper and metal down pipe with the end of the discharge pipe clearly visible (tundish visible or not) or onto a roof capable of withstanding high temperature discharges of water and 3m from any plastics guttering system that would collect such discharges (tundish visible).

iv. where a single pipe serves a number of discharges, such as in blocks of flats, the number served should be limited to not more than 6 systems so that any instalation discharging can be traced reasonably easily. The single common discharge pipe should be at least one pipe size larger than the largest individual discharge pipe (D2) to be connected. If unvented hot water storage systems are installed where discharges from safety devices may not be apparent i.e. in dwellings occupied by blind, infirm or disabled people, consideration should be given to the installation of an electronically operated device to warn when discharge takes place.

Note: The discharge will consist of scalding water and steam. Asphalt, roofing felt and non-metallic rainwater goods may be damaged by such discharges.

Worked example of discharge pipe sizing

The example below is for a G1/2 temperature relief valve with a discharge pipe (D2) having 4 No. elbows and length of 7m from the tundish to the point of discharge.

From Table 1:

Maximum resistance allowed for a straight length of 22mm copper discharge pipe (D2) from a G1/2 temperature relief valve is 9.0m.

Subtract the resistance for 4 No. 22mm elbows at 0.8m each = 3.2m

Therefore the permitted length equates to: 5.8m

5.8m is less than the actual length of 7m therefore calculate the next largest size.

Maximum resistance allowed for a straight length of 28mm pipe (D2) from a G1/2 temperature relief valve equates to 18m.

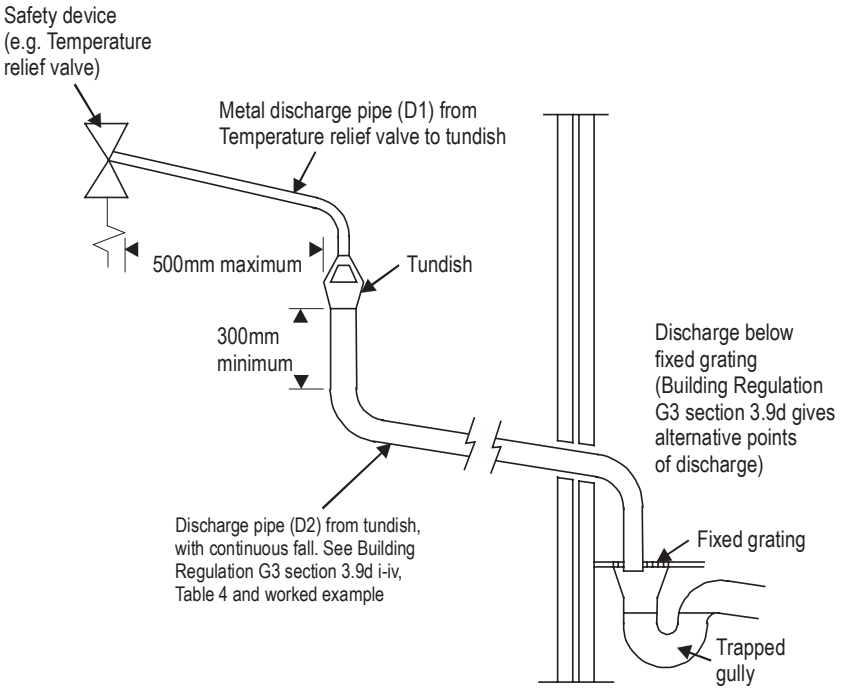
Subtract the resistance of 4 No. 28mm elbows at 1.0m each = 4.0m

Therefore the maximum permitted length equates to: 14m

As the actual length is 7m, a 28mm (D2) copper pipe will be satisfactory.

Table 1 - Sizing of copper discharge pipe (D2) for common T&P relief valve sizes

VALVE OUTLET SIZE	MINIMUM SIZE OF DISCHARGE PIPE D1	MINIMUM SIZE OF DISCHARGE PIPE D2 FROM TUNDISH	MAXIMUM RESISTANCE ALLOWED, EXPRESSED AS A LENTGH OF STRAIGHT PIPE (I.E. NO ELBOWS OR BENDS	RESISTANCE CREATED BY EACH ELBOW OR BEND
G 1/2	15MM	22mm 28mm 35mm	UP TO 9M UP TO 18M UP TO 27M	0.8M 1.0M 1.4M
G 3/4	22MM	28mm 35mm 42mm	UP TO 9M UP TO 18M UP TO 27M	1.0M 1.4M 1.7M
G 1	28MM	35mm 42mm 54mm	UP TO 9M UP TO 18M UP TO 27M	1.4M 1.7M 2.3M



4 Installation - Direct Heating

4.1 IMMERSION HEATER(S)

The Premier Plus SystemFit is supplied with a factory fitted immersion heater which can be used as an alternative heat source should the boiler supply need to be isolated from the unit. The immersion heater is located within the indirect controls housing. The immersion heater is rated 3kW at 240V (2.7kW at 230V). 210 litre models and above are supplied with a second blanked off boss which can be used for the connection of a second immersion heater should this be required.

To remove the blanking plug:

Open the cover to the upper immersion heater boss. The cover is secured by a cross-headed screw. Unscrew brass backnut using the key spanner provided with the unit. Remove the blanking plate and sealing gasket from the boss.

Fitting the additional immersion heater (where required order Part No. 95 970 510):

Insert the immersion heater and sealing gasket into the boss. Ensure that the sealing gasket is not displaced when inserting. It may be helpful to support the immersion heater using a round bladed screwdriver inserted into one of the thermostat pockets. Hand tighten the brass backnut. Secure the immersion heater in position by tightening with the key spanner provided.

4.2 WIRING (see Diagram 6)

All electrical wiring should be carried out by a competent electrician and be in accordance with the latest I.E.E. Wiring Regulations. Each circuit must be protected by a suitable fuse and double pole isolating switch with a contact separation of at least 3mm in both poles.

The immersion heater(s) should be wired in accordance with Diagram 6. The Live and Neutral conductors should be connected directly to the combined thermostat/thermal cut-out to the terminals marked A and B. The immersion heaters MUST be earthed. The supply cable should be 1.5mm^2 3 core HOFR sheathed and must be routed through either the cable grip provided (lower housing) or the cable gland provided (upper housing 210 litre units and above only) with the outer sheath of the cable firmly secured by tightening either the top bar of the cable grip or the screws on the cable gland. Replace the housing cover(s) before operating. On the upper housing (210 litre and above only) ensure that the threaded edge clip is in position to provide a suitable thread for the cover screw.

DO NOT operate the immersion heater(s) until the Premier Plus SystemFit has been filled with water.

4.3 OPERATION

It is recommended that the immersion heater thermostats are set to between position 4 and 5 (60° - 65°C), however they can be set between 1 and 5 (10° and 70°C). The thermostat incorporates a thermal cut-out that will switch off the immersion heater in the event of a thermostat failure. The thermal cut-out reset button position is indicated on Diagram 7. DO NOT bypass the thermal cut-out in any circumstances.

4.4 SAFETY

DO NOT BYPASS THE THERMAL CUT-OUT(S) IN ANY CIRCUMSTANCES

DISCONNECT FROM THE MAINS SUPPLY BEFORE REMOVING ANY COVERS NEVER ATTEMPT TO REPLACE AN IMMERSION HEATER OTHER THAN WITH THE RECOMMENDED SANTON PREMIER PLUS SPARE PART

Diagram 6 - Schematic wiring diagram - Direct immersion heaters

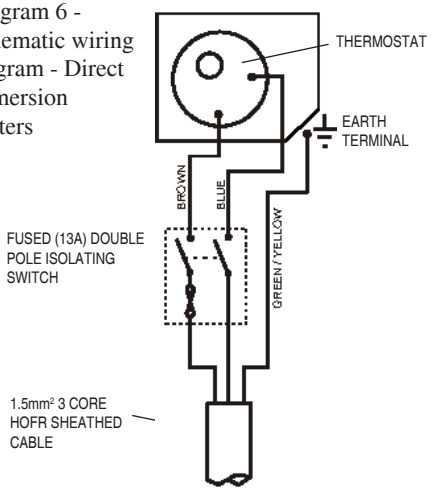
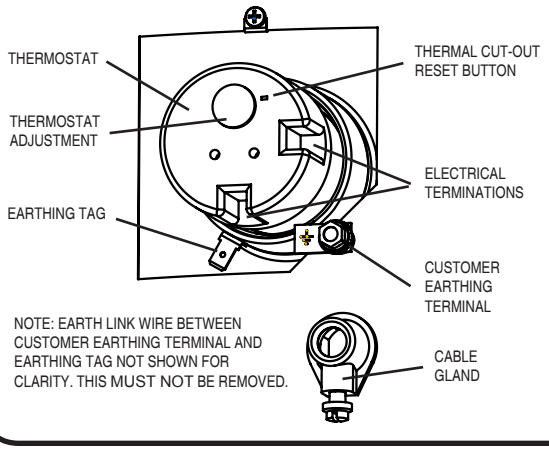


Diagram 7 - Immersion heater details


THERMOSTAT
THERMOSTAT ADJUSTMENT
EARTHING TAG
THERMAL CUT-OUT RESET BUTTON
ELECTRICAL TERMINATIONS
CUSTOMER EARTHING TERMINAL
CABLE GLAND
NOTE: EARTH LINK WIRE BETWEEN CUSTOMER EARTHING TERMINAL AND EARTHING TAG NOT SHOWN FOR CLARITY. THIS MUST NOT BE REMOVED.

5 Installation - Primary Circuit

5.1 BOILER SELECTION

The Premier Plus SystemFit models are suitable for use with most gas or oil fired or electric boilers compatible with unvented systems i.e. fitted with a temperature control thermostat and thermal cut-out.

If in doubt consult the boiler manufacturer.

Solid fuel boilers or any other boiler in which the energy input is not under effective thermostatic control unless additional and appropriate safety measures are installed should NOT be used.

The boiler used can either be a sealed system or open vented type, maximum primary circuit pressure 3 bar.

The primary flow from the boiler MUST be pumped. Gravity circulation will not work due to the special design of the primary heat exchanger.

The boiler flow temperature should usually be set to 82°C (maximum flow temperature to primary heat exchanger 90°C).

The boiler cannot be vented through the Premier Plus SystemFit unit.

5.2 INDIRECT THERMAL CUT-OUT AND 2-PORT MOTORISED VALVE

To comply with Building Regulations and to prevent the Premier Plus from overheating the 2-Port motorised valve supplied fitted to the primary flow to the indirect coil MUST NOT be removed or bypassed. This valve is factory wired in series with the indirect thermal cut-out such that the primary flow to the heating coil is interupted should the Premier Plus SystemFit unit overheat.

5.3 WIRING

All electrical wiring should be carried out by a competent electrician and be in accordance with the latest I.E.E. Wiring Regulations.

The Premier Plus SystemFit Indirect Thermostat and Thermal Cut-out, primary circulating pump and motorised valves are factory pre-wired. Further wiring will be required between the Wiring Centre, the Programmer, Room Temperature Sensor and the boiler (see Diagram 9). Additional controls and wiring will be required if a second CH zone is to be fitted to the instalation.

The Indirect Thermal Cut-out MUST NOT be bypassed.

5.4 HEATING SYSTEM CONTROLS

The controls provided with the Premier Plus SystemFit will ensure the safe operation of the unit within a central heating system.

Connection to the various system components is made via the Wiring Centre fitted to the front of the Premier Plus SystemFit . Refer to Diagram 9 and the terminal identification labels within the Wiring Centre to aid in connecting the various external system components such as the mains supply, programmer and boiler. The wiring to the external components is made using flexible cable, this should be secured using the integral cable grips located in the Wiring Centre.

Provision is made for the connection of a second CH zone (connection pipe supplied blanked off). Additional controls will be necessary to control the operation of the second CH zone, usually a second 28mm CH zone valve and a programmable room thermostat. Connection termi-

nals are provided and identified in the Wiring Centre to enable any wiring to be connected to the same central position.

The mains supply must be via a double pole isolating switch with a contact separation of at least 3mm in both poles. The supply must be fused 3Amp. A supply cable of 1.0 to 1.5mm^2 cross sectional area should be used.

5.5 PROGRAMMER AND ROOM TEMPERATURE SENSOR

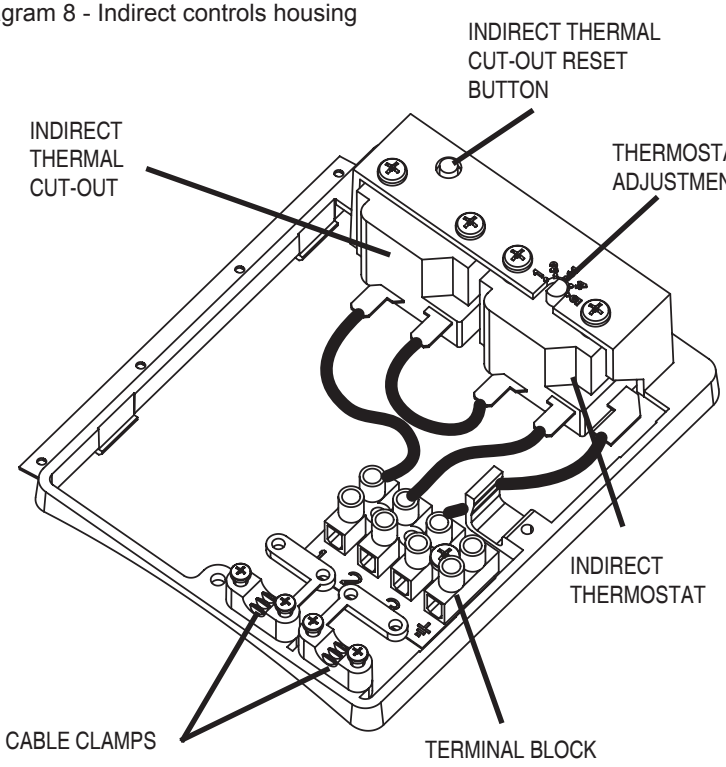
The Programmer and Room Temperature Sensor are supplied loose such that they can be installed at a convenient location within the property. These items are supplied with their own Installation and User Instruction leaflet which should be referred to for details of mounting, wiring and programming. NOTE the Room Sensor is wired directly to the Programmer not to the Wiring Centre. The Room Sensor must be used, it is not possible to integrate a standard room thermostat with the Programmer. Temperature setting of the room temperature is also done at the Programmer, there is no adjustment at the Room Temperature Sensor. Temperature setting of the stored water in the Premier Plus System-Fit is done at the indirect thermostat housed within the Indirect Terminal Housing on the front of the Premier Plus SystemFit unit (see Diagram 8).

Basic Programmer features:

- 24 Hour or 5/2 Day operation
- Room temperature setting at Programmer
- Set temperature over-ride facility
- 1 Hour hot water boost facility
- Battery back up retains programmed information in the event of a power interuption
- Low temperature set back option for periods when the property is unoccupied, eg. holiday periods
- Independent time control of Central Heating and Domestic Hot Water (Building Regu lation Part L1 compliant)

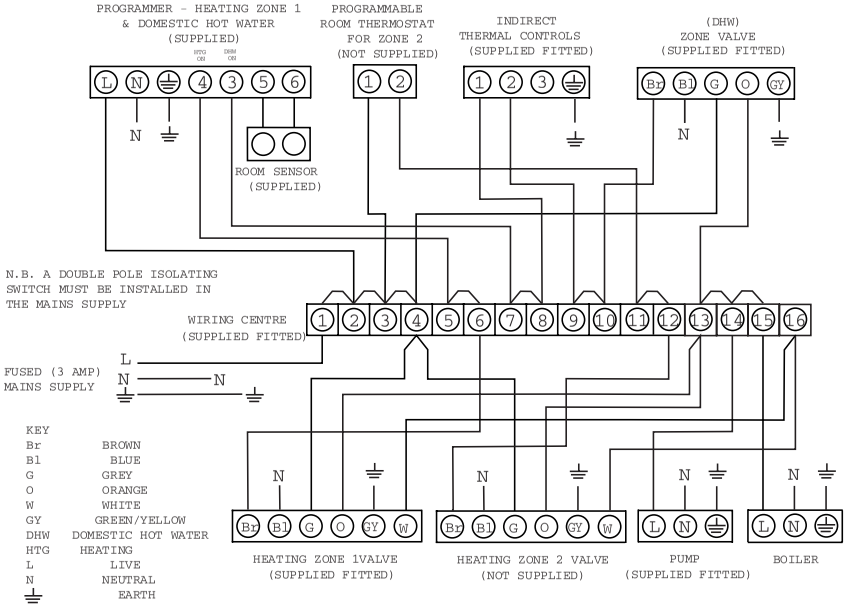
NOTE: The Programmer supplied will only provide control for one CH zone. Should a second CH zone be required additional controls will be needed (not supplied) to fulfill the requirements of Building Regulation Part L1.

Diagram 8 - Indirect controls housing



NOTE:
THE HOUSING COVER AND ELEMENT ASSEMBLY HAVE BEEN REMOVED FROM THIS VIEW FOR CLARITY

Diagram 9 - Schematic wiring diagram - indirect circuit



NOTES

1. ALL EARTH CONNECTIONS MUST BE LINKED BACK TO THE EARTH TERMINALS IN THE WIRING CENTRE
2. ALL NEUTRAL CONNECTIONS MUST BE LINKED BACK TO THE NEUTRAL TERMINALS IN THE WIRING CENTRE
3. ASSUMES BASIC BOILER
4. THE 22MM MOTORISED VALVES DO NOT HAVE A WHITE WIRE
5. THE ABOVE DIAGRAM IS FOR GUIDANCE ONLY, SANTON ACCEPT NO LIABILITY FOR ANY LOSS OR DAMAGE ARISING FROM ANY ERRORS OR OMISSIONS THAT MAY BE INADVERTENTLY CONTAINED WITHIN THIS DIAGRAM. THE VARIOUS EQUIPMENT MANUFACTURERS SHOULD BE CONSULTED TO CONFIRM THE CORRECT OPERATION OF THEIR PRODUCTS WITHIN THE SYSTEM

6 Commissioning

6.1 FILLING AND FLUSHING THE PREMIER PLUS SYSTEMFIT

It is possible for compression fittings to become loose in transit due to transport vibration. Ensure that all fittings and immersion heaters are correctly fitted and tightened. An immersion heater key spanner is provided to aid in tightening the immersion heater(s).

i) Open a hot tap furthest from the Premier Plus SystemFit .

ii) Open the isolating valve to the Premier Plus SystemFit installation. Open the mains stop cock to fill the unit. When water issues from the tap, allow to run for a few minutes to thoroughly flush through any residue, dirt or swarf, then close tap.

iii) Open successive hot taps and any cold outlet supplied by a balanced take off to purge any air from the system.

iv) Check all connections for leaks and rectify as necessary.

v) The Strainer housed within the Cold Water Combination Valve should be cleaned to remove any debris that may have been flushed through the main supply pipe. Refer to Section 8.3 for instructions on how to do this.

6.2 CHECK THE OPERATION OF THE SAFETY VALVES

i) Slowly manually open, for a few seconds, the Temperature and Pressure Relief Valve situated on the Premier Plus unit (see Diagram 11). Check water discharged runs freely away through the tundish and discharge pipework. Close valve, ensure water flow stops and valve reseats correctly.

ii) Repeat for the Expansion Valve situated on the Expansion Core Unit (see Diagram 11).

6.3 DIRECT HEATING

Switch on the electrical supply to the immersion heater(s) and allow the unit to heat up. Check that the thermostat operates correctly. A storage temperature of approx. 60°C is recommended (between graduations 4 and 5 on the thermostat). If necessary the temperature can be adjusted by inserting a flat bladed screwdriver in the adjustment knob on top of the immersion heater thermostat and rotating (see Diagram 7). The adjustment range 1 to 5 represents a temperature range of between 10° and 70°C.

Check that no water is discharged from either the Expansion Valve or Temperature and Pressure Relief Valve during the heating cycle.

6.4 INDIRECT (PRIMARY) CIRCUIT

Fill the indirect (primary) circuit following the boiler manufacturer's commissioning instructions. To ensure the primary heating system is correctly filled the 2-port motorised valves should be manually opened by moving the lever on the motor housings to the MAN OPEN setting. When the primary circuit is full return the levers to the AUTO position. Vent any trapped air. Check the primary system for leaks and rectify as necessary. Flush the primary system in accordance with the boiler manufacturers instructions and add a suitable inhibitor when re-filling.

Switch on the electrical supply to the Premier Plus SystemFit indirect controls and the boiler. Programme the Premier Plus SystemFit controller as detailed in the Fitting and User Instruction leaflet supplied with the controller. Set the controller for Hot Water operation only (the +1HR ON Hot Water over-ride button can be used if the time is during a Hot Water OFF period). Check that the Heating 2-Port motorised valve is closed and that the Hot Water 2-Port motorised valve opens. The pump should run and the boiler fire (tap symbol appears in controller display). The primary flow to the Premier Plus SystemFit should become hot, if it does not check for a wiring or piping error. Allow the Premier Plus unit to heat up and check that the Hot Water thermostat and 2-Port motorised valve operate correctly. A storage temperature of approx. 60°C is recommended (approx. graduation 4 on the indirect thermostat). If necessary the temperature can be adjusted by inserting a flat bladed screwdriver in the adjustment knob (located on the front of the thermostat mounting bracket see Diagram 8) and rotating. The minimum thermostat setting is 10°C. The adjustment range 1 to 5 represents a temperature range of 30° to 70°C.

Select the Heating only function on the controller. NOTE: The room temperature is set at the controller, no adjustment is possible at the Room Sensor unit. Check that the Heating 2-Port motorised valve opens and that the Hot Water 2-Port motorised valve is closed. The pump should run and the boiler fire (a flame symbol appears in the controller display). The primary flow to the Premier Plus SystemFit and the radiator circuit should become hot, if it does not check for a wiring or piping error.

If a second CH zone is fitted adjust the programmable room thermostat so that it is calling for heat. Check that the second CH zone valve opens. The pump should run and the boiler fire. The primary flow to the second CH zone should become hot, if it does not check for a wiring or piping error.

Select the Heating and Hot Water control function on the controller. Check that the Heating 2-Port motorised valve and the Hot Water 2-Port motorised valve open. NOTE: it may be necessary to cool the Premier Plus SystemFit down to allow the indirect thermostat to call for heat, it may also be necessary to increase the required room temperature setting if the room temperature has already reached that programmed. The pump should run and the boiler fire (both a tap symbol and a flame symbol should appear in the controller display). The primary flow to the Premier Plus SystemFit and the radiator circuit should become hot, if it does not check for a wiring or piping error.

When the Heating and Hot Water temperatures are reached the 2-Port motorised valves should close, the pump stop running and the boiler stop firing. NOTE: if a pump over-run boiler is fitted the pump may continue to run for a short time after the boiler has shut down.

Check that no water is discharged from either the Expansion Valve or Temperature and Pressure Relief Valve during the heating cycle. (Cont. over page)

If the user temperatures or On and Off times have been adjusted for commissioning purposes the controller should be reset to the desired settings. The operation of the controller should be demonstrated to the user and the Controller Installation and User Instructions left with them for future reference.

6.5 AUTOMATIC SYSTEM BY-PASS

An automatic differential bypass valve is fitted to the Premier Plus SystemFit. This has been factory set to an optimum position for most domestic heating systems. However, in some systems it may require further adjustment. To do this:

Loosen the brass locking screw on the top of the adjustment cap of the bypass valve. Turn the adjustment knob fully clockwise so that the number 5 coincides with the indicator arrow on the body of the valve.

Turn on the system and set the controller to Heating only. Balance the system in the normal manner.

With the boiler firing and the pump running, slowly turn the adjustment knob anti-clockwise until hot water can be felt on the outlet side of the bypass valve. Turn the adjustment knob clockwise by half a turn. Lock in position by tightening the brass locking screw.

6.5 BENCHMARK™ LOG BOOK

On completion of the installation and commissioning procedures detailed in this manual the Benchmark ™ "Installation, Commissioning and Service Record Log Book" should be completed and signed off by the competent installer or commissioning engineer in the relevant sections.

The various system features, location of system controls, user instructions and what to do in the event of a system failure should be explained to the customer. The customer should then countersign the Benchmark™ log book to accept completion.

The log book should be left with the customer along with these instructions. The log book includes sections that should be filled in when any subsequent service or maintenance operation is carried out on the Premier Plus SystemFit.

7 User Instructions

7.1 WARNINGS

IF WATER ISSUES FROM THE TEMPERATURE/PRESSURE RELIEF VALVE ON THE PREMIER PLUS UNIT SWITCH OFF ELECTRICAL SUPPLY TO THE IMMERSION HEATER(S) OR SHUT DOWN THE BOILER. DO NOT TURN OFF THE WATER SUPPLY. CONTACT A COMPETENT INSTALLER FOR UNVENTED WATER HEATERS TO CHECK THE SYSTEM.

DO NOT TAMPER WITH ANY OF THE SAFETY VALVES FITTED TO THE PREMIER PLUS SYSTEM, IF A FAULT IS SUSPECTED CONTACT A COMPETENT INSTALLER.

7.2 TEMPERATURE CONTROL

IMMERSION HEATER(S)

A combined thermostat and thermal cut-out is provided for each immersion heater. The thermostat is factory set to give a water storage temperature of approx. 60°C, however it can be set to control between 10°C and 70°C. This will usually have been done during installation. Adjustments can only be made by opening the terminal cover(s), DO NOT remove the cover(s) without first switching off the electrical supply. The temperature adjustment is made by inserting a flat bladed screwdriver in the slot in the disc on top of the thermostat and rotating (see Diagram 7).

If in any doubt consult a competent electrician.

HEATING BY BOILER

The Premier Plus SystemFit is fitted with an Indirect Thermostat which controls a 2 Port motorised valve and hence the temperature of the water in the Premier Plus SystemFit unit. The thermostat is factory set to give a water storage temperature of approx. 60°C, however it can be set to control between 10°C and 70°C, this will usually have been done during installation. Adjustments can only be made by opening the terminal cover. DO NOT remove the cover without first switching off the electrical supply. Temperature adjustment is made by inserting a flat bladed screwdriver in the adjustment knob located on the front of the thermostat mounting bracket (see Diagram 8) and rotating. At the minimum position the temperature will be approx. 10°C. The adjustment range 1 to 5 represents a temperature range of 30° to 70°C

If in any doubt consult a competent electrician.

DO NOT bypass the thermal cut-outs in any circumstances.

The space heating control temperature and the operating times for Heating and Hot Water are set using the remotely mounted Controller. The optimum temperatures and times will have been set during commissioning. Should the temperatures or timings need to be altered refer to the Installation and User Instructions leaflet supplied with the Controller for the method of adjustment. If a second CH zone is fitted this will be controlled by its own programmable room thermostat. Refer to the manufacturers Installation and User instructions supplied with the programmable room thermostat for the method of setting and adjustment of heating times and temperatures.

7.3 FLOW PERFORMANCE

When initially opening hot outlets a small surge in flow may be noticed as pressures stabilise. This is quite normal with unvented systems and does not indicate a fault.

In some areas a cloudiness may be noticed in the hot water. This is due to aeration of the water, is quite normal and will quickly clear.

7.4 OPERATIONAL FAULTS

Operational faults and their possible causes are detailed in Section 9.3. It is recommended that faults should be checked by a competent installer.

8 Maintenance

8.1 MAINTENANCE REQUIREMENTS

To ensure the continued optimum performance of the Premier Plus SystemFit it should be regularly maintained. This is of particular importance in hard water areas or where the water supply contains particulate matter. Maintenance should be carried out by a competent person and any replacement parts used should be authorised Santon Premier Plus spare parts. It is recommended that maintenance is carried out every 12 months and includes the checks detailed in 8.2 and 8.3 below.

In hard water areas consideration should be given to periodically descaling the immersion heater elements. To do this the Premier Plus unit will need to be drained, 8.4 and 8.5 below detail how to drain the unit and remove the immersion heater(s).

8.2 CHECK OPERATION OF SAFETY VALVES

Slowly open the Temperature and Pressure Relief Valve by twisting its cap for a few seconds. Check water is discharged and that it flows freely through the tundish and discharge pipework. Check valve reseats correctly when released.

NOTE : The water discharged may be very hot.

Repeat the procedure for the Expansion Valve (located on the Expansion Valve Core Unit).

8.3 CLEAN THE STRAINER

The strainer is incorporated within the Pressure Reducing Valve housing of the Cold Water Combination Valve (see Diagram 10). To inspect and clean the strainer:

i) Turn off the isolating valve to the Premier Plus SystemFit.
ii) Open the lowest hot tap in the system to relieve the system pressure
iii) Unscrew the Pressure Reducing Valve Cartridge from the Pressure Reducing Valve Housing.
iv) Pull the Pressure Reducing Valve cartridge from the valve assembly. The strainer will be withdrawn with the cartridge.
v) Wash any particulate matter from the strainer under clean running water.
vi) Screw the Pressure Reducing Valve cartridge into the Pressure Reducing Valve Housing ensuring the seal is correctly fitted. DO NOT use any other type of sealant.
ix) Close hot tap, turn on isolating valve. Check for leaks.

8.4 DRAINING THE PREMIER PLUS UNIT

Switch off the electrical supply to the immersion heater(s) and/or shut down the boiler. Turn off the mains water supply to the Premier Plus unit. Attach a hosepipe to the drain cock having sufficient length to take water to a suitable discharge point below the level of the unit, at least one metre below the unit is recommended. Open hot water tap nearest to the Premier Plus to relieve the system pressure. Open drain cock. If water fails to drain from the Premier Plus vent the unit by manually opening the Temperature/Pressure Relief Valve.

8.5 DESCALING IMMERSION HEATER(S)

Open the cover(s) to the immersion heater housing(s) and disconnect wiring from immersion heater(s). Remove the thermostat by carefully pulling outwards from the immersion heater. Unscrew immersion heater backnut(s) and remove immersion heater from the unit. A key spanner is supplied with the Premier Plus SystemFit unit for easy removal/tightening of the immersion heater(s). Over time the immersion heater gasket may become stuck to the mating surface. To break the seal insert a round bladed screwdriver into one of the pockets on the immersion heater and gently lever up and down.

Carefully remove any scale from the surface of the element(s). DO NOT use a sharp implement as damage to the element surface could be caused. Ensure sealing surfaces are clean and seals are undamaged, if in doubt fit a new gasket.

Replace immersion heater(s) ensuring the lower (right angled) element hangs vertically downwards towards the base of the unit. It may be helpful to support the immersion heater using a round bladed screwdriver inserted into one of the thermostat pockets whilst the backnut is tightened. Replace the thermostat(s) by carefully plugging the two male spade terminations on the underside of the thermostat head into the corresponding terminations on the element.

Rewire the immersion heater(s) in accordance with Diagram 6. Close and secure terminal cover(s).

8.6 CHECK EXPANSION VESSEL CHARGE PRESSURE

Remove the dust cap on top of the vessel. Check the charge pressure using a tyre pressure gauge. The pressure (with system de-pressurised) should be 3.5 bar. If it is lower than the required setting it should be re-charged using a tyre pump (Schrader valve type). DO NOT OVER CHARGE.

Re-check the pressure and when correct replace the dust cap.

8.7 REFILLING SYSTEM

DO NOT switch on the immersion heater(s) or boiler until the system has been completely refilled.

Close the drain tap. With hot tap open, turn on mains water supply. When water flows from the hot tap allow to flow for a short while to purge air and to flush through any disturbed particles. Close hot tap and then open successive hot taps in system to purge any air. The electrical supply can now be switched on.

8.8 BENCHMARK™ LOG BOOK

On completion of any maintenance or service of the Premier Plus the Benchmark™ “Installation, Commissioning and Service Record Log Book” should be filled in to record the actions taken and the date the work was undertaken.

9 Fault Finding & Servicing

9.1 IMPORTANT

i) Servicing should only be carried by authorised Santon Service Engineers or Agents or by competent installers in the installation and maintenance of unvented water heating systems.

ii) Any spare parts used MUST be authorised Santon parts.

iii) Disconnect the electrical supply before removing any electrical equipment covers.

iv) NEVER bypass any thermal controls or operate system without the necessary safety valves.

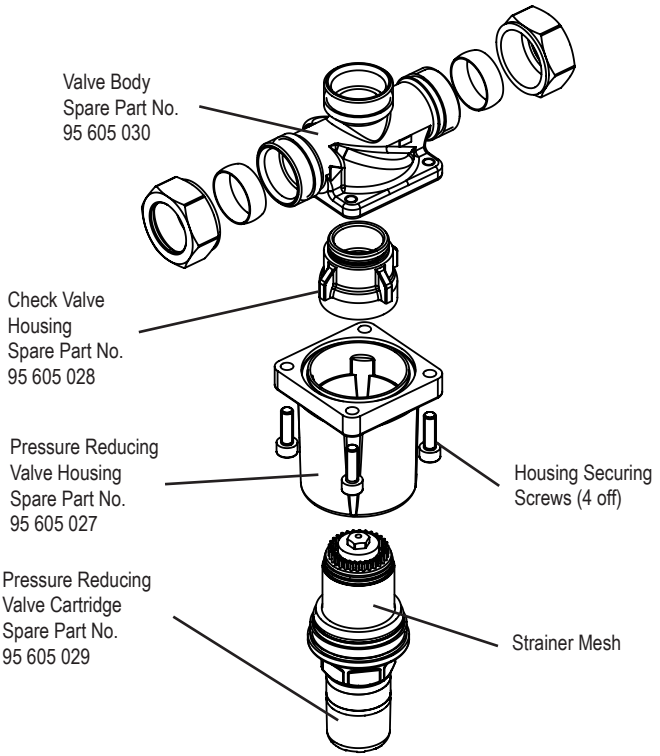
v) Water contained in the Premier Plus SystemFit unit may be very hot, especially following a thermal control failure. Caution must be taken when drawing water from the unit.

9.2 SPARE PARTS

A full range of spare parts are available for the Premier Plus SystemFit range. Refer to the Technical Data label on the unit to identify the model installed and ensure the correct part is ordered.

Description	Part no.
Immersion heater (lower)	95 606 946
Immersion heater (upper)	95 606 947
Immersion heater gasket	95 611 822
Immersion heater backnut	95 607 869
Immersion heater key	95 607 861
Immersion heater blanking plug	95 605 881
Tundish	95 605 838
Expansion relief valve cartridge - 6bar	95 605 864
Cold water combination valve body	95 605 030
Expansion Core housing (incorporating Check Valve)	95 605 872
Pressure reducing valve cartridge - 3.5 bar	95 605 029
Cold Water Combination Valve complete	95 605 022
Temperature/Pressure Relief Valve	95 605 810
Set of compression nuts and olives	95 607 838
Combined thermostat/thermal cut-out for immersion heater	95 612 599
Terminal cover upper (210 litre units and above)	95 607 836
2 Port motorised valve (22mm connections)	95 605 819
Indirect thermostat	95 612 697
Indirect thermal cut-out	95 612 698
Terminal cover (lower)	95 607 837
4 way terminal block	95 607 902
Wiring Centre	95 612 702
TP9 Programmer	95 607 903
TP9 Room temperature sensor	95 607 904
Automatic bypass valve (straight pattern)	95 605 882
Circulating pump	95 612 676
2 Port motorised valve (28mm connections)	95 605 884

Diagram 10 - Exploded view of the Cold Water Combination Valve



Cold Water Combination Valve Complete
Spare Part No. 95 605 022

9.3 FAULT FINDING

The Fault Finding chart overleaf (Table 2) will enable operational faults to be identified and their possible causes rectified. Any work carried out on the Premier Plus SystemFit unvented water heater and its associated controls MUST be carried out by a competent installer for unvented water heating systems. In case of doubt contact the Santon Service Department (see Section 12).

Table 2 - Fault Finding CHART

FAULT	POSSIBLE CAUSE	REMEDY
No hot water flow	1. Mains supply off 2. Strainer blocked 3. Cold Water Combination Valve incorrectly fitted	1. Check and open stop cock 2. Turn off water supply. Remove strainer and clean (see Section 8.3) 3. Check and refit as required
Water from hot taps is cold	1. DIRECT immersion heater not switched on 2. DIRECT immersion heater thermal cut-out has operated 3. INDIRECT programmer set to Central Heating only 4. INDIRECT boiler not working 5. INDIRECT thermal cut-out has operated 6. INDIRECT motorised valve not connected correctly	1. Check and switch on 2. Check. Reset by pushing button. (See Diagram 7) 3. Check. Set to a Domestic Hot Water programme 4. Check boiler operation. If fault is suspected consult boiler manufacturer's instructions 5. Check. Reset by pushing button on cut-out. Check operation of indirect thermostat 6. Check wiring and/or plumbing connections to motorised valve (see Diagram 9)
Water discharges from Expansion Relief Valve	1. INTERMITTENTLY Expansion vessel charge pressure has reduced below 3.5 bar 2. CONTINUALLY a. Cold Water Combination Valve Pressure Reducer not working correctly b. Expansion Valve seat damaged.	1. See Section 7.5 for re-charging procedure a. Check pressure from Cold Water Combination Valve. If greater than 3 bar replace Pressure Reducer cartridge b. Remove Expansion Valve cartridge. Check condition of seat. If necessary fit new Expansion Valve cartridge.
Water discharges from T&P Relief Valve	1. Thermal control failure NOTE water will be very hot	1. Switch off power to immersion heater(s) and shut down boiler. DO NOT turn off water supply. When discharge stops check all thermal controls, replace if faulty.
"Milky" water	Oxygenated water	Water from a pressurised system releases oxygen bubbles when flowing. The milkiness will disappear after a short while.

10 Dimensions & Specifications

Diagram 11a

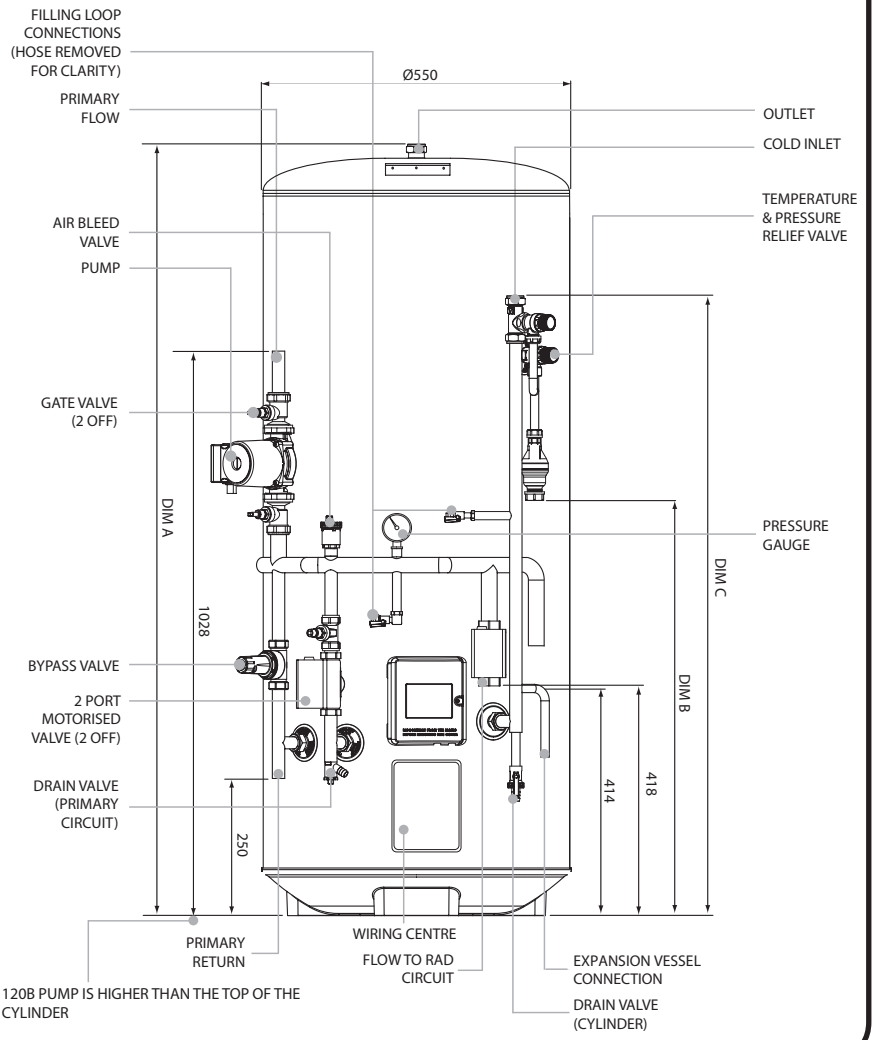
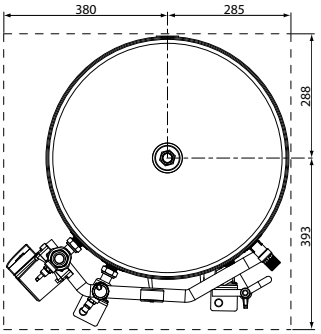


Diagram 11b



DASHED LINE DENOTES MINIMUM SPACE REQUIREMENT

Dashed line denotes minimum space required for installation
NOTE: Minimum distance for centre line of unit to rear wall is 284mm.

*Top of pump extends 95mm above this height

SIZE	TYPE	NOMINAL DIMENSION (mm)			UNIT WEIGHT (KG)	
		A	B	C	EMPTY	FULL
120	B	935*	402	742	34	183
150	B	1119	585	940	42	211
170	B	1245	705	1050	45	240
210	B	1503	975	1310	51	262
250	B	1755	1175	1505	58	309
300	B	2069	1475	1812	68	368

NOMINAL CAPACITY (litres)	COIL			HEATING TIME IMM. HTR. (mins)
	SURFACE AREA (sq.m)	RATING (kW)	RECOVERY (mins)	
120	0.43	12.5	22	121
150	0.55	16.4	21	152
170	0.61	16.0	24	173
210	0.68	18.3	26	215
250	0.79	20.0	27	257
300	0.79	20.0	33	310

NOTE
Coil heating performance based on a primary flow rate of 15 l/min at 80° C with flow to water heater coil heat exchanger only. Heating times may be reduced if space heating requirement is simultaneous with water heating requirement or boiler output is lower than potential coil output rating.
Temperature rise is from 15° C to 60° C.
Recovery is based on reheating 70% of the nominal capacity

OUTLINE SPECIFICATIONS

Maximum mains water supply pressure (to Cold Water Combination Valve)	16.0 bar
Operating pressure (Pressure reducing valve set pressure - non adjustable)	3.5 bar
Expansion valve set pressure	6.0 bar
Temperature/Pressure relief valve set temp/pressure	90°C/10 bar
Immersion heater rating (a.c. supply only)	3.0kW 240V 2.7kW 230V

Outer casing:
Grey textured plastic coated corrosion proofed steel

Water container:
Stainless steel (grade 1.4362 to EN10088). 100% pressure tested to 15 bar.

Thermal insulation:
CFC/HCFC free fire retardant expanded polyurethane foam. Nominal thickness 50mm.

Pipe connections:
All models: Inlet and Outlet connections accept 22mm outside diameter pipe - compression nuts and olives supplied.
120/150 litre models: Primary flow from boiler, primary vent, heating coil return - 22mm o/dia copper pipe. CH motorised valve accepts 22mm o/dia copper pipe. Primary cold feed connection 15mm o/dia copper pipe.
170, 210, 250, 300 litre models: Primary flow from boiler, primary vent, 2nd CH zone tapping - 28mm o/dia copper pipe. CH motorised valve accepts 28mm o/dia copper pipe. Primary heating coil return and primary cold feed connection - 22mm o/dia copper pipe.

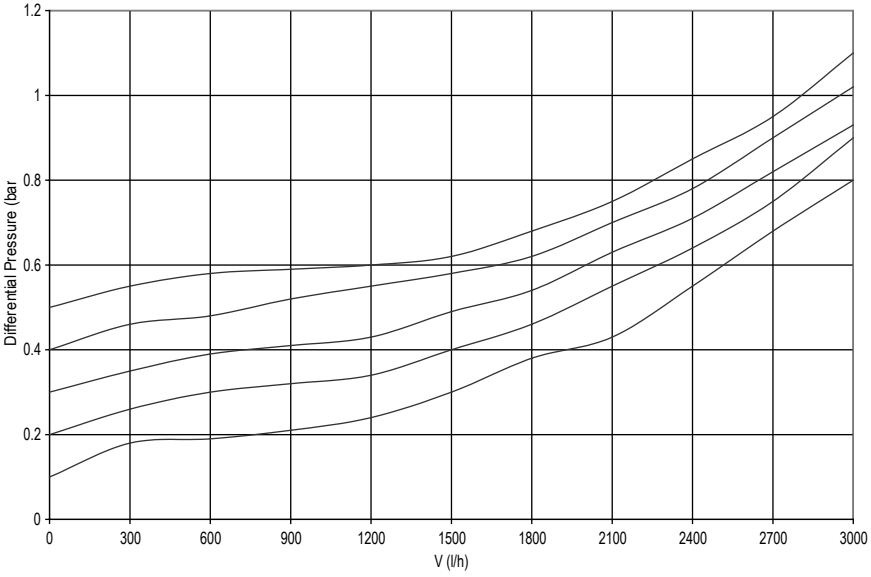
Safety features:
All Premier Plus SystemFit units -

- Manually resettable thermal cut-out on heating element
- Manually resettable thermal cut-out for primary heating. Factory wired in series with 2 port motorised valve supplied.
- Factory fitted Temperature/Pressure relief valve

Danfoss TP9 Programmable thermostat with timed Domestic Hot Water (DHW) control:
Programmer dimensions: 136mm (W) x 88mm (H) x 32mm (D)
Room temperature sensor dimensions: 60mm (W) x 45mm (H) x 21mm (D)
Power supply: 220V/240V ac, 50Hz
Switch action 2 x SPDT, Type 1B. Switch rating 220/240V ac, 50/60Hz, 3(1)A
Power reserve: minimum 24 hours
Memory back up during extended power cut up to 15 days
Enclosure rating: IP30
Control temperature range: selectable 5 to 30°C or 16 to 30°C
Holiday mode with room temperature setback
Timing accuracy: +/- 1 minute/month
Maximum ambient temperature: 45°C

Honeywell 2 Port motorised valves:
Model No.: V4043H
Voltage rating: 230V ac, 50HZ
Power consumption: 6W
Primary water temperature range: 5 to 88°C
Maximum ambient temperature: 50°C

Automatic by-pass valve:
Model No.: RWC Diff 391 301
Setting range: 0.1 to 0.5 bar differential pressure
Maximum primary water temperature: 120°C

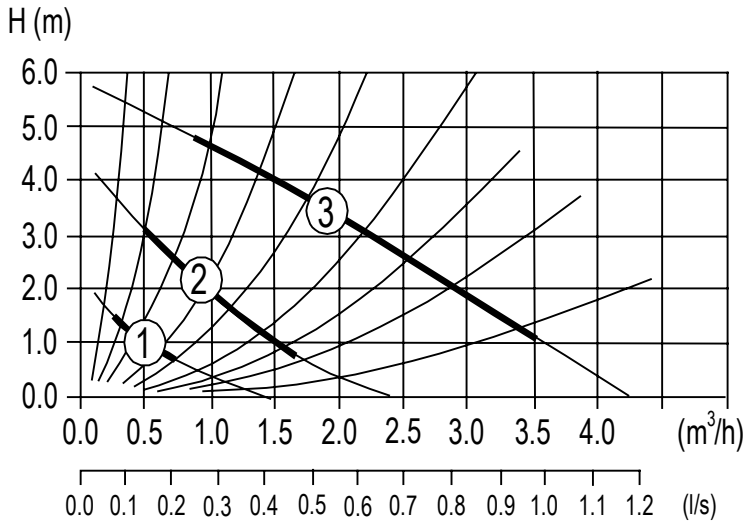


Primary circulating pump:
Model No.: Grundfos UPS15-60
Working pressure: 10 bar max.
Voltage rating: 230V ac, 50Hz
Starting capacitor: 2uF
Enclosure rating: IP42

Electrical data

SPEED SETTING	SPEED R.P.M.	INPUT POWER (W)	FULL LOAD CURRENT (A)	LOCKED ROTOR CURRENT (A)
III	1750	95	0.44	0.47
II	1100	65	0.30	0.31
I	750	40	0.17	0.18

Pump Curves



11 Guarantee

11.1 WARNING

Should the factory fitted Temperature and Pressure Relief Valve be tampered with or removed your guarantee will be invalidated. Neither the Distributor or Manufacturer shall be responsible for any consequential damage howsoever caused.

11.2 GUARANTEE TERMS

Santon guarantee the electrical parts, thermal controls and valves for a period of two years from the date of purchase, with the exception of damage due to scaling. The potable water expansion vessel (coloured grey) and cold water control valve are guaranteed for a period of 5 years.

The stainless steel vessel is guaranteed for a period of twenty-five years against faulty manufacture or materials provided that :-

i) It has been installed by a competent installer and as per the instructions contained in this manual and all relevant Codes of Practice and Regulations in force at the time of installation.

ii) Any disinfection has been carried out in accordance with BS 6700.

iii) It has not been modified in any way other than by Santon.

iv) It has only been used for the storage of potable water.

v) It has not been installed in a location liable to be subjected to frost, nor has it been tampered with or been subjected to misuse or neglect.

vi) No factory fitted parts have been removed for unauthorised repair or replacement.

vii) Within 60 days of purchase the user completes and returns the certificate supplied to register the product.

Evidence of purchase and date of supply must be submitted.

This guarantee does not affect your statutory rights.

ENVIRONMENTAL INFORMATION

This product is made from many recyclable materials, therefore at the end of its useful life it should be disposed of at a Local Authority Recycling Centre in order to realise the full environmental benefits.
Insulation is by means of an approved CFC free polyurethane foam.

The pace of product development is such that we reserve the right to change product specifications without notice. We do, however, strive to ensure that all information in this leaflet is accurate at the time of publication

12 Contacts

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E-mail: sales@ewh.co.uk

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